SECTI

3 October 1956

MEMORANDAM FOR: THE RECORD 25X1 : Visit to SUBJECT TIME AND PLACE OF MEETING: The meeting was held 27 September 25X1 1956 at 25X1 2. ATTENDANCE: To discuss the progress on the Contact PURPOSE OF MEETING: Microphone Project (P-109B) and the Wall Measurement Program (Ad Hoc #25) 4. DISCUSSION: Contact Microphone - P-109B 25X1 found that their previous calibration tests, using wall mounts, were not accurate enough. In this test setup, a Massa Accelerometer was used as a standard and the unknown unit compared with it. Both units would be mounted in the same spot on a wall and driven with the same frequencies and intensities. However, under this test setup, the high frequencies did not show up. has now gone to the use of a vibration detector and a 25X1 25X1 shake table, similar to the one used by 25X1 has found that nearly every crystal microphone tested by them peaked somewhere around 1200 cps, regardless of 25X1 who made it. calculated the passameters of what they wanted in a crystal microphone mathematically, but have found so far, that in actual practice, their calculations do not hold true. More work is being done to ascertain why. The basic formulas

 $\hat{\mathbf{T}} = \frac{\mathbf{T}}{\mathbf{A}}$

is using are:

fr * frequence response T * Thickness

A = Area

Sensativity = LW

L = Length

W . Width

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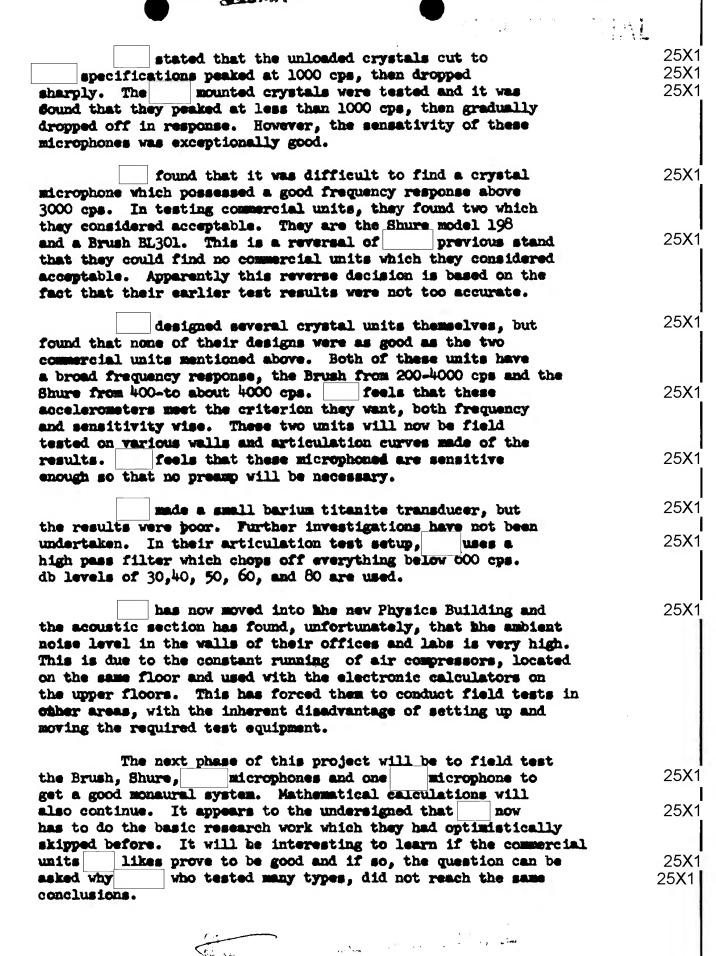
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b. Wall Measurement Program - Ad Hoc #25

has conducted a series of tests using a Sperry	23/
Reflective type ultra sonic measurement gauge. The results	
obtained so far have been negative. The frequency range of	
this instrument is from .5 to 50 MC. stated that the	25 X 1
higher frequencies are not satisfactory and that the lower	
frequencies offer more promise. found that, although a	25 X 1
signal could be obtained on some samples at the lowest	
frequency of this instrument, the three major obstacles to	
overcome were: (1) absorption in the wall, (2) dispersion of	
the way due to peebles, speede, etc., in the wall, and (3)	
good contact on rough walls. The transducer must make a good	
contact or no results will be obtained.	
It appears that started this project without much	25X1
thought of the problems involved. They now feel that their	
next step will be to make a literature check of the field to	
see what has been done; to determine the optimum frequency	
range and transducer size, and to try the instrument they	
have with a lower frequency range and a higher intensity. If	
poor results are still obtained will try the resonance	25 X 1
type ultrasonic gauge.	
has calculated that the reflective type of	25X1
instrument is not capable of measuring walls less than 2"	
thick. According to their figures, at 40 KC, in a well 2"	
or less the pulse travel time in and out is of such a	
duration that it becomes buried in the next pulse.	
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tried the device on wood with no results.

Measurements of a brick wall gave fairly good results, mainly due to the fact that a brick is fairly homogenous and the contact surface is fairly smooth. Measurements on cement walls up to 6" could be obtained if a transducer was used on each side. If only one transducer was used, a signal could be picked up; but the correlation was poor. feels that it should be possible by the use of ultra sonics to measure cement walls up to 12" and possibly 20". However, they admit that at the moment they cannot substantiate this statement.

'ISE/APD

Distribution:

1 - P-109B

1 - AH-25

1 - Chrono

1 - AWB

AWB/le

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